

AMENDMENTS TO THE SPECIFICATION

Please amend the present specification as follows, according to the version which has been published as US 2004/0093860 A1:

On page 4, please replace paragraph [0039] with the following replacement paragraph:

[0039] As shown in Figure 1, a portion of the waste stream 14 may also be optionally diverted at a tee 15 to provide supplemental waste stream 17. By injecting supplemental waste stream 17 into one or more of the downstream waste destruction zones, WOG emissions reduction efficiency may be enhanced. In the embodiment of Figure 1, the supplemental waste stream 17 is provided to the secondary waste destruction zone 26 via waste stream addition point ~~[[27]]~~31. The addition point ~~[[27]]~~31 may be comprised of a burner, wind box, mixer, distributor, injector, nozzle, or other such injection hardware.

On page 6, please replace paragraphs [0057]-[0058] with the following replacement paragraphs:

[0057] The waste stream 114 generally comprises components or streams from an industrial process that are to be destroyed. The waste stream 114 can include gas, liquid, or a mixture of both and may also comprise inert components such as water, diatomic nitrogen, or carbon dioxide. The actual constituents of the waste gas stream 114 would depend on the particular industrial process under consideration, but must include at least a minimum amount of reactive waste components. Examples of such reactive waste components include but are not limited to aliphatic hydrocarbons, ammonia, acrolein, hydrogen, hydrogen cyanide, carbon monoxide, urea, and aromatics. Although such compounds may comprise oxygen atoms as part of their structure, such as carbon monoxide, compounds without oxygen are generally preferred. It is preferred that waste streams injected into a downstream waste destruction zone comprise at least 0.5 mol% reactive waste components, or not more than 99.5 mol% inert components, to efficiently reduce WOG emissions. It is especially preferred that the waste streams comprise at least 2 mol% reactive waste components, or not more than 98 mol% inert components. Industrial chemical processes associated with the vertical embodiment of the thermal oxidizer may comprise those processes producing hydrogen cyanide, acrolein, acrylic acid, acrylonitrile, methacrylonitrile, methacrolein, methacrylic acid, phthalic anhydride, maleic anhydride, and mixtures thereof.

[0058] It is contemplated that in some embodiments, it may be advantageous to inject ancillary waste streams into the thermal oxidizer 120 either through a dedicated injection point or by admixing the ancillary waste into waste stream 114 or, alternatively, supplemental ~~[[waste]]~~oxidant stream 117. Ancillary waste streams comprise waste streams that may emanate from another portion of the subject industrial process or from a wholly different process. Such ancillary waste streams may or may not comprise significant amounts of reactive waste

components and may further comprise solids, liquids, gases, or mixtures of two or more of these. Examples of such ancillary wastes include, but are not limited to, recovered waste fuels, organic-contaminated wastewater, process vent gases, polymer solids, or mineral acid residues.

On page 6, please amend the section title immediately preceding paragraph [0063] as follows:

Comparative Example 1

On page 6, please amend the section title immediately preceding paragraph [0065] as follows:

Comparative Example 1

On page 7, please replace paragraph [0066] with the following replacement paragraph:

[0066] Natural Gas from a commercial pipeline was used as the combustion fuel stream 12 and was injected into the primary combustion zone at a rate of 36,306 liters/minute (1282 scfm). Ambient temperature atmospheric air was used for the oxidant stream 10 and was injected into the primary combustion zone 22 at a rate of 646,262 liters/minute (22,820 scfm) and into the secondary waste destruction zone 26 at a rate of 431,030 liters/minute (15,220 scfm). The firebox temperature averaged 862° C (1583° F) and the stack 30 oxygen level (as measured on a wet basis) was 3 mol%. A 60° C (140° F), gaseous waste stream 14 comprising 98 mole% inerts (e.g., nitrogen, water, carbon dioxide, oxygen, and argon), 0.9 mole% aliphatic hydrocarbons (e.g., propylene, propane), and 1.1 mole% other reactive waste components (e.g., carbon monoxide, acetic acid, acrolein, etc.) were provided to the incinerator, yielding a total reactive waste component feed concentration of 2 mole%. The waste stream 14 was split into two portions at tee 15: the first portion was injected through a twelve-hole circumferential distributor at a rate of 658,723 liters/minute (23,260 scfm) into the primary waste destruction zone (at point 25, located approximately 0.76 meters (2.5 feet) downstream of oxidant injection point 21); the second portion was injected through a thirty-hole circumferential distributor at a rate of 329,362 liters/minute (11,630 scfm) into the secondary waste destruction zone (at point 31, located approximately 0.76 meters (2.5 feet) downstream of waste stream injection point [[21]]25). The resulting NO_x emission rate was determined to be 7.2×10^{-5} mg NO_x/cal (0.040 lb NO_x/MM BTU) fired, representing a NO_x emissions reduction of over 50% as compared to the base-load case of Example 1. Thus the method of the present invention can be seen to provide a significant reduction in WOG emissions from the waste destruction process.